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Forming the Regional Systems of Innovation in Russian Federation (on an example of Vologda Region)

PhD Project by Svetlana V. Terebova
Supervisor: Professor Elena S. Gubanova
THE VOLOGDA SCIENCE-COORDINATION CENTER OF THE RUSSIAN ACADEMY OF SCIENCE

Outline:

Research Questions

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Research Questions:

1. What mechanisms and instruments of forming and development of Systems of Innovation are used in foreign countries?

2. Which of them are used by Russian Federation most of all?

3. What might be the role of Regional Systems of Innovation in facilitating a transition in Russian Federation`s economy towards sustainability?

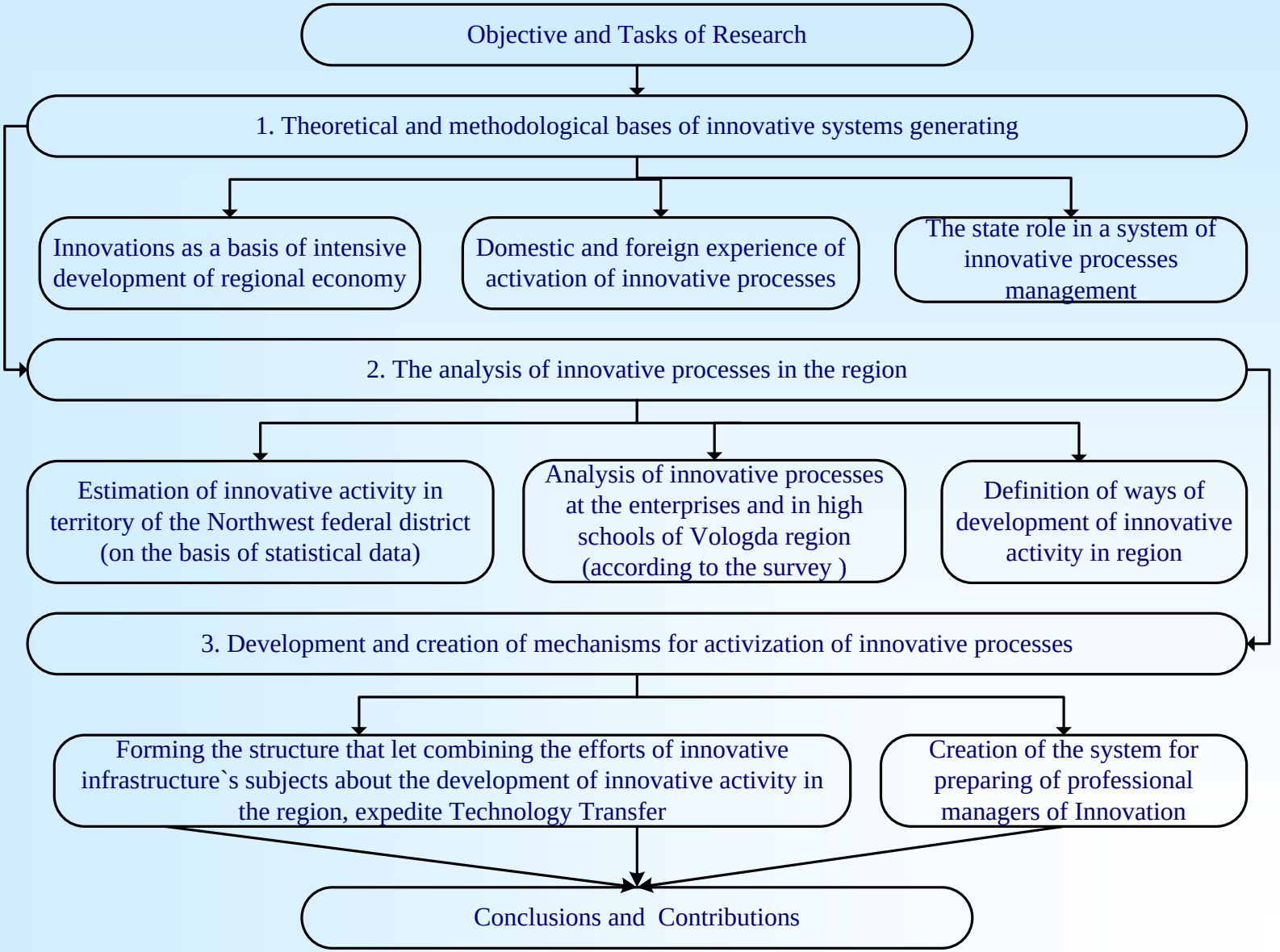
4. How can innovative policy of the Russian Federation influence the transition of economy from traditional to innovative development?

5. What measures can help the formation of Innovation System in Vologda Region and the development of high-tech business on its territory?

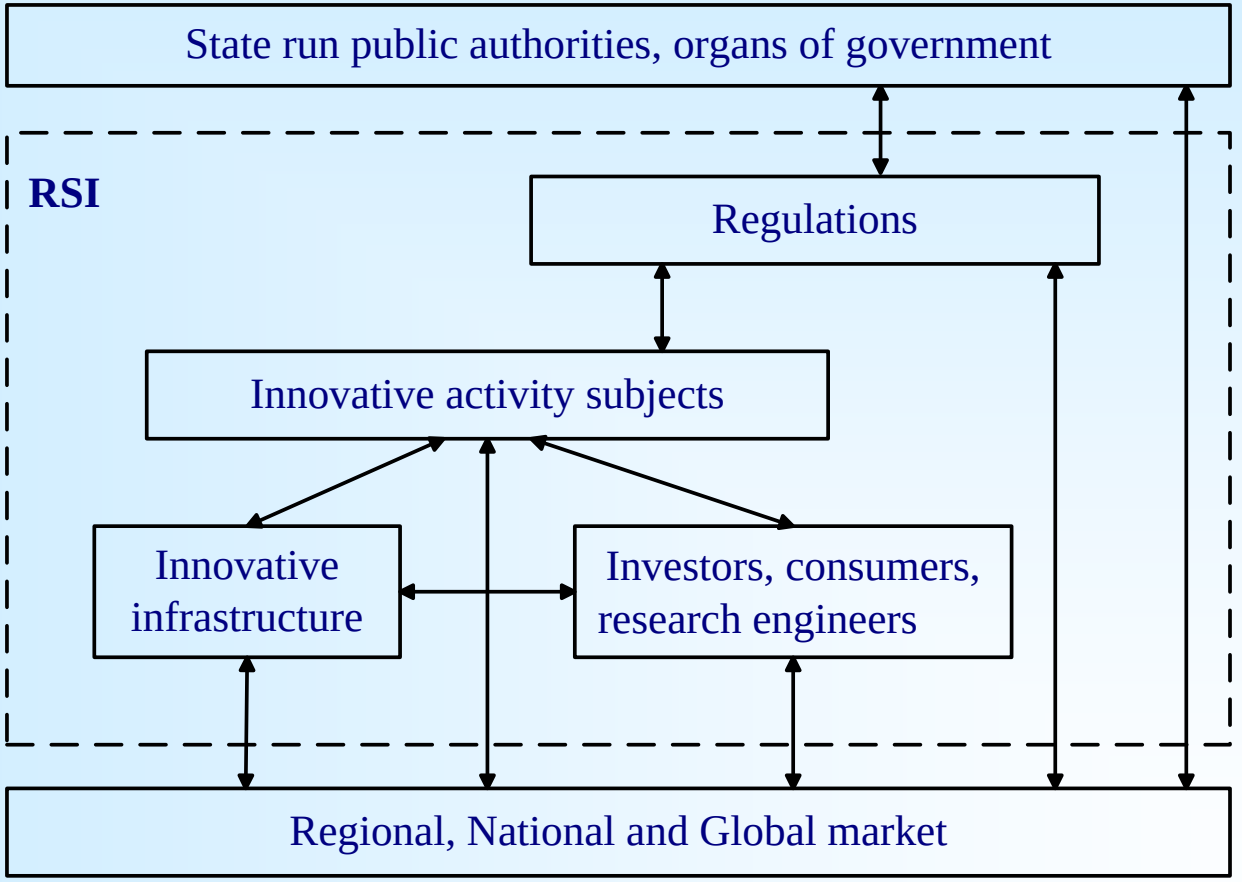
Objective:

This project is focused on developing the of Innovation Systems in Russian Federation`s regions (i.e. Vologda Region), due to the start of innovative activities in the regions with the introduction of models and mechanisms which stimulate and transfer the modern technologies and the latest engineering from scientific institutions to managing organizations. It will promote the commercialization of scientific and technical potential of the regions and development of high-tech business on their territories.

Conceptual Model of Thesis



Regional Systems of Innovative structure and innovative activity connections



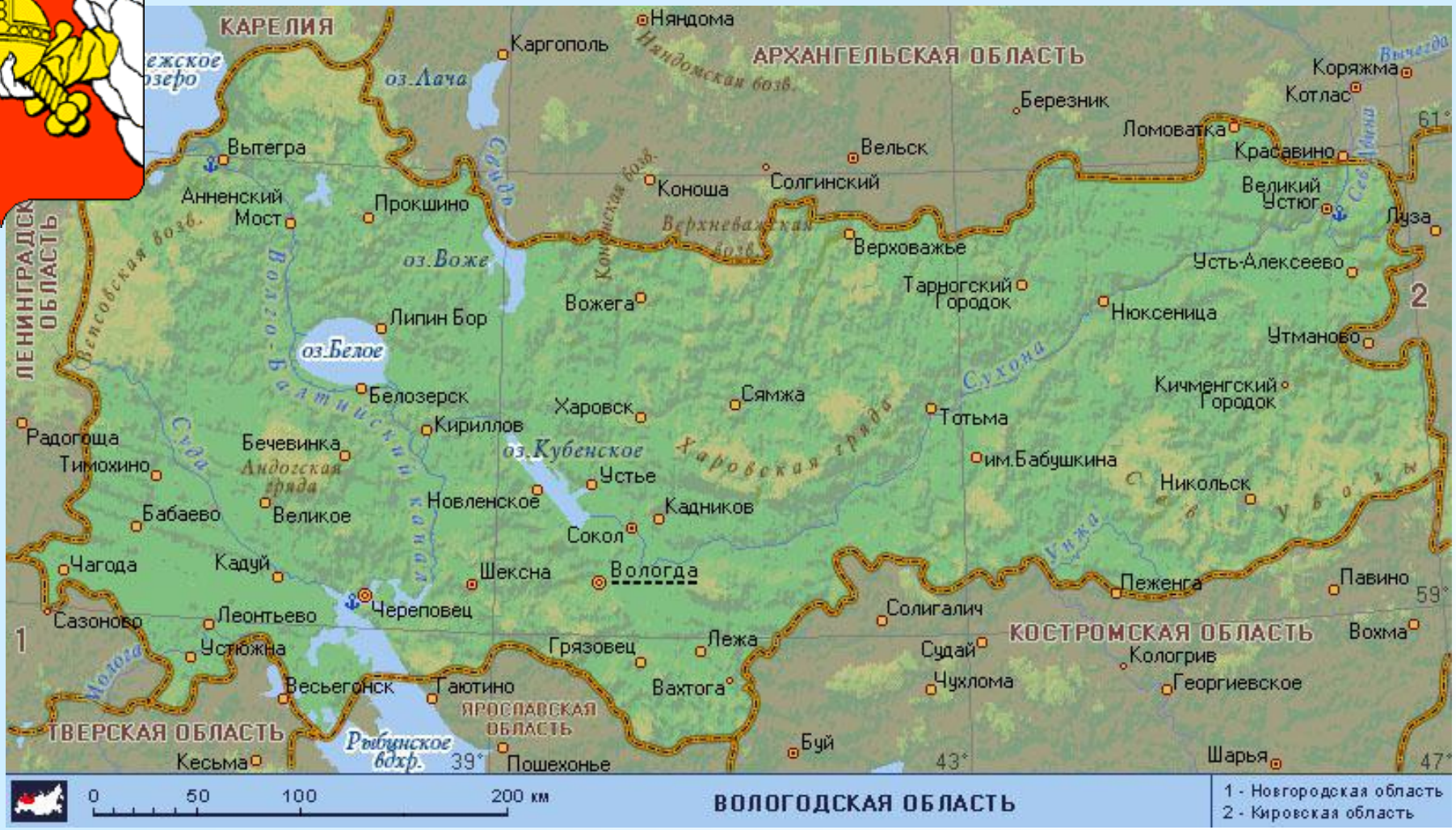
Approaches to construct the Regional System of Innovation

The title	Approach essence
«Top-down» approach (traditional)	All key moments of regional scientific and technical development are defined at federal level. RSI elements, its functioning purposes and problems are rigidly subordinated to the national level purposes. Development Resources arrive from the federal budget.
«Bottom –up» approach	The region itself forms and carries out the scientific and technical policy and, accordingly, defines structure and RSI functions. Federal centre gives to region the right to establish priorities of scientific and technical development.
The project approach	It is characterized by realization on the region territory of the concrete initiatives organizers of which can be both federal governing bodies, and regional and even local. Both scientific, and educational, and business structure can participate in the project and supervise it. Financing and management restrictions are also conventional enough.

The factors influencing regional Innovative Processes

Direct	Indirect
1. Competition Level 2. The Social and Economic level of regional development 3. The Level of science and technical development 4. Manufacturing diversification, a choice of priority directions of development 5. Development of small innovative business 6. Volume of high-tech production export-import 7. Innovative activity of regional enterprises 8. A technical and technological level of regional production 9. Educational level, highly skilled labour 10. Innovative Processes security information resources.	1.Nature and climate environment 2. The Social and Economic environment 3. State and region policy 4. The innovative environment 5. The international environment

About Vologda region



Vologda region

Geographical position – the European North of Russia

The Area of territory – 145 700 square kilometers

The Vologda region includes 26 district

The Population – 1,4 million person

Population density – 9 person on one square kilometers

This regional territory represents more than 100 nationalities but Russian population makes more than 90%.

65% of the region is forests

Indicators of innovation process in RF and EU

Indicator	RF		including				Development countries (2000)
			NFD[1]		Vologda region		
	Year						
	2000	2006	2000	2006	2000	2006	
Innovation activity of industrial enterprises, %	8,8	8,6	7,7	7,7	10,7	8,9	Ireland – 75,0 Germany -65,8; Finland – 48,6
Number of patent applications and inventions counting upon 100 thousand person	19,1	13	22	13	9	8	Finland – 4838,6 Czech – 1560,8 Spain – 624,9 Germany – 376,6
Number of the personnel engaged in research and development, on 10000 population the person	123,7	110,7	155, 6	152, 2	6,3	8,4	Finland – 101 Germany – 59 France – 56
Number of students of higher educational institutions on 10000 population the person	292	431	377	423	200	348	Germany – 250 Spain – 458 Italy – 306 France – 342

[1] NFD - Northwest Federal District

Innovation activity of industrial enterprises of the Vologda region in %

Various of economics activity	Year				Absolute variation
	2003	2004	2005	2006	
Total, including:	**12,3**	**8,2**	**8,4**	**8,9**	**-3,4**
Manufacturing activity	13,8	9,2	9,3	12,0	-1,8
– food processing	23,5	16,8	13,7	12,7	-10,8
– textile and sewing	20,0	7,7	8,3	7,7	-12,3
– woodworking	10,0	8,0	9,1	-	-
– pulp and paper industry	17,2	-	-	5,4	-11,8
– Chemical manufacture	**40,0**	**33,0**	**-**	**40,0**	**0,0**
– Manufacture of nonmetallic mineral products	13,3	8,7	7,7	14,3	1,0
– Manufacture metallurgical and ready metal products	**49,5**	**39,6**	**19,0**	**21,7**	**-27,8**
– Manufacture of machines and the equipment	23,8	27,8	10,5	16,7	-7,1
– others	2,0	-	22,2	16,7	14,7
Manufacture and distribution of the electric power, gas and water	12,9	2,6	2,8	1,0	-11,9
Transport and communication	**25,0**	**46,0**	**30,0**	**33,3**	**8,3**
Operations with real estate, rent and granting of services	17,1	3,1	16,7	37,5	20,4

Priority list of technologies for Vologda region

- ✓Energy-saving
- ✓Information-telecommunication systems
- ✓Processing and reproduction of wood resources
- ✓Manufacture and processing of agricultural raw material
- ✓Safety and quality assurance of agricultural raw material and foodstuff
- ✓Technologies for deep processing of domestic raw material and materials in the light industry

The analysis exposed the following problems

1. **Number of the staff involved into research and development is insignificant**. There is a deficit of processional innovative managers. In 2005 on the territory of the region only 464 persons conducted research work, or 7 persons per 10 000. Analogous indicator throughout Russia is 110,7 persons. Number of the staff involved into research and development per population 10 000 in some countries of EU in 2003 was: in Finland - 110; in German - 58, in Spain - 36, in Poland - 20, in Czeckia - 27.

2. **There is not enough finance to conduct research work is the region**. So, internal expenses for research and development in all financing sources per a scientific employee in Vologodskaya oblast in 2005 were: 10,5 thousand dollars and in Russia-16,8 thousand dollars. In the country of EU this indicator in 2005 was: in German - 118,7 thousand dollars, in Finland - 90,7, in Czech - 79,7, in Spain - 72,8, in Poland - 32.

3. **A low level of innovative activity of the enterprises of the region**. The level of innovative activity of Vologda Region is 7 %, in Russian Federation - 15 %, in the developed countries innovative activity of the enterprises is on the level of about 50 %: in German - 60,3 %, in Finland - 44,9 %, in France - 40,8 %, in Italy - 36,3 %.

4. According to statistics date **no advanced production technology was developed** by patent applications 9 in Russian Federation - 21. In the development countries this indicator on 2 - 3 orders above: in Finland - 4838, in Czech - 1560, in Spain - 624, in German - 376, in France 305, 9, in Poland - 246.

5. Research of innovative processes in the region has shown, that **thematic research works conducted in the establishment of higher education does not coincide with priority direction of technologies development**, realized by the enterprises. Some direction of interest for enterprise (processing and reproduction of houses, rapid construction and transformation of houses and other) have not become priorities for the establishment of higher education.

RUSSIAN TECHNOLOGY TRANSFER NETWORK (RTTN)

RTTN
РОССИЙСКАЯ СЕТЬ
ТРАНСФЕРА ТЕХНОЛОГИЙ

Including 23 regions of RF

INTERNATIONAL SEGMENTS OF RTTN

British-Russian Innovation Network (BRIN)

Contacts RTTN with IRC from Germany and Italy

French-Russian Technology network (RFR)

EXAMPLES OF NEGOTIATIONS

Client	Need of Client	Technology	Potential Partner was found through RTTN
1. Technology Offers			
KRONVERK Ltd., Cherepovetz	RTTN commercialization of technology	building material (blocks from cement wood)	1. Rosa Ltd., Tyumen 2. Private entrepreneur Sishmakov M.E., Obninsk 3. Private entrepreneur Oganesian S., Maikop 4. Sibintegra Ltd., Tomsk 5. STAL-INVEST Ltd., Ufa
2. Technology Request			
«Severstal-Emal» Ltd, Cherepovetz	RTTN Search of technology	Technology of clearing of industrial water	1. Water Development Services Ltd, England 2. The Volga State Academy of Water Transport, Nizhny Novgorod 3. Novokuznetsk Branch-Institute of Kemerovo State University, Novokuznetsk

Practice of work in RTTN in Vologda region

Indicator of the work	Year			Total
	2005	2006	2007	
Placed structures	7	17	34	58
Received expressions of interest	15	21	91	127
Carried on negotiations	2	8	12	24
Agreements on transfer of technologies	-	2	2	4

Conclusions

1. Strengthening of the state role in innovative activities in transition economy is vital i.e. provision of infrastructure.

2. In Russia there are already many elements of innovative infrastructure. Now it is required to adjust them for work under market conditions. But where these are not sufficient; it is necessary to create them. e.g. the innovative and technological centers, techno parks, business incubators, technology transfer networks, venture capital funds.

3. Federal authorities have large-scale influence on region enterprises and the knowledge generation sphere. While fiscal and administrative influence of regional authorities is limited. So delegation of authority is necessary to regional administration.

4. The state can influence on national innovative system development by means of various programs besides control over their realization.

Thanks for your attention!

E-mail: Svetlana-ter@mail.ru